



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,721	01/22/2004	Edgar N. Rudisill	SS2910USCNT1	5196

23906 7590 04/08/2005

E I DU PONT DE NEMOURS AND COMPANY
LEGAL PATENT RECORDS CENTER
BARLEY MILL PLAZA 25/1128
4417 LANCASTER PIKE
WILMINGTON, DE 19805

EXAMINER

TORRES VELAZQUEZ, NORCA LIZ

ART UNIT PAPER NUMBER

1771

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/762,721

Applicant(s)

RUDISILL ET AL.

Examiner

Norca L. Torres-Velazquez

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 76,79,81,83-87,89,91 and 93-96 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 76,79,81,83-87,89,91 and 93-96 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 17, 2005 has been entered.

Response to Arguments

2. Applicant's arguments with amended to claims filed March 30, 2005 have been fully considered but they are not persuasive.

a. Applicants have amended the independent claims to recite that the nonwoven layer, which are made of hard yarn melt spun polyolefin fibers are constituted of the same, single polymer. Applicants find support for such limitation at page 15, lines 14-15 that explicitly discloses a fabric "constituted of a single polymer". Applicants argue that the OFOSU et al. reference teach the use of fiber webs made from two different polyolefin polymers that have different melt flow rates and therefore, the polymers are not the same, notwithstanding the fact that they may start from the same polyolefin material.

It is noted that the Specification of the present invention discloses that a garment made from the claimed nonwoven fabric, after use would preferably be fully recyclable as it would be constituted of a single polymer, which would be readily recycled back to constituent monomer as compared to other materials, which are combinations of dissimilar polymers or wherein at least one constituent is not a recyclable polymer. (Page

15, lines 14-17) It is the Examiner's position that the polypropylene polymers used by the OFOSU reference do read on the term "same, single polymer" in the context described by Applicants' Specification in which the polymer would be readily recycled back to constituent monomer. It is noted that in the case of polypropylene the monomer is propylene, which would be readily available from the polypropylene spunbond layers taught by OFOSU et al. The fact that OFOSU et al. uses polypropylene with different melt-flow rate in the different layers does not make the material different from the "same, single polymer" as defined in the present invention since the constituent monomer of polypropylene is propylene regardless of the melt-flow rate of the polymer. Therefore, the rejections over OFOSU et al. in view of McAMISH et al. that provides teachings to use a fluorocarbon is maintained herein.

b. Further, a new rejection over PERKINS et al. (US 5,178,932) is stated herein.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1771

4. Claims 76, 79, 81, 83, 83-87, 89, 91 and 93-96 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over PERKINS et al. (US 5,178,932).

PERKINS et al. disclose a nonwoven composite structure, which has three melt-extruded nonwoven layers. The first nonwoven is adjacent to one surface of the second nonwoven web and the third nonwoven web is adjacent to the other surface of the second nonwoven web. The second nonwoven web consists of substantially continuous and randomly deposited micro fibers having an average diameter of from about 0.1 to about 10 micrometers. At least one of the first and third nonwoven webs has been treated by topical application of at least one agent to alter or enhance the surface characteristics of the filaments in the web. The composite structure is pattern bonded by the application of heat and pressure. (Abstract) The reference teaches the use of a "thermoplastic polymer" in the formation of the three nonwoven layers and defines the term "thermoplastic polymer" to include a single polymer. (Col. 5, lines 58-64) The most preferred polyolefins are polypropylene and polyethylene. (Col. 6, lines 32-33) The reference teaches the use of fluorocarbons (Refer to Col. 7-8), to provide alcohol repellency and hydrophobicity and teaches that these additives can be applied by methods such as spraying, surface coating, printing and the like. (Col. 11, lines 53-65) The reference teaches the use of the additives in applications in which the nonwoven structure is to be used as a medical fabric. (Col. 11, lines 33-38) In their example, the reference teaches a structure produced from a polypropylene meltblown web having a basis weight of about 14 gsm between two polypropylene spunbonded webs with a basis weight of about 20 gsm each. The structure was

Art Unit: 1771

treated with a perfluoroalkyl acrylic copolymer to provide it with alcohol repellent and antistatic properties. (Col. 12, lines 39-68 through Col. 13, lines 1-22; also refer to claim 8)

It is the Examiner's interpretation that the first and third layers of PERKINS et al. equate to the multiple nonwoven layers of the present invention, the second layer equates to the at least nonwoven polyolefin layer comprising fibers having cross-sectional areas of less than about $75\mu\text{m}^2$. It is noted that the diameter of the fibers in the second layer of PERKINS is from about 0.1-10 micrometers, which provides cross-section of between about $0.157\text{-}78.5\ \mu\text{m}^2$. [cross-section= $(3.14)(d/2)^2$] It is further noted that the reference teaches the use of fluorocarbons in the first and third spunbonded nonwoven layers. With regards to the basis weight of the fabric, it is noted that the fabric described in the example of PERKINS et al. is about 54 gsm, which falls within the range claimed herein. With regards to the limitation reciting that the multiple nonwoven layers are made of hard yarn melt spun polyolefin fibers, it is noted that the term "hard yarn fibers" is defined in the Specification of the present application as fibers that are made by quenching and drawing the fibers after they are spun so that the polymer chains are oriented within the fiber. (Page 4, lines 18-21) It is the Examiner's interpretation that the spunbond fibers as disclosed by the reference read on the presently claimed hard yarn melt spun polyolefin fibers as it is exemplified by the prior art cited in the PERKINS et al. disclosure. (Particularly, the Appel et al. references; Refer to Col. 5, lines 34-43)

Although PERKINS et al. does not explicitly teach the claimed grab tensile strength, Frazier permeability, hydrostatic head properties and cross sectional void percentage of the thermally bonded nonwoven fabric, it is reasonable to presume that these properties are inherent to the nonwoven composite structure of PERKINS et al. Support for said presumption is found

Art Unit: 1771

in the use of like materials (i.e. a nonwoven composite with spunbond layers made from the same polymer, that are treated with fluorocarbon for repellency and a meltblown layer with fibers with similar cross-sections, the fabric being pattern bonded by the application of heat and pressure and having a basis weight within the claimed values herein). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property of a grab tensile strength in both the MD and the CD between at least about 1 N/(g/m²), normalized for basis weight, and the combinations of Frazier permeability at and hydrostatic heads claimed herein would obviously have been present once the nonwoven composite of PERKINS et al. is provided. Also the cross sectional void percentage of at least about 85 percent would obviously have been present once the product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection made above under 35 USC 102. Reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner, et al.* (CCPA) 186 USPQ 80

Claim Rejections - 35 USC § 103

5. Claims 76, 79, 81, 83, 86, 87, 89, 91 and 93-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over OFOSU et al. (US 6,268,302 B1) in view of McAmish et al. (US 4,908,163).

OFOSU et al. is directed to a soft and strong nonwoven spunbond polyolefin fabric for use in medical products and protective covers. (Col. 1, lines 42-67) The reference teaches the use of thermal calendering in the formation of the fabric. (Col. 5, lines 1-5) The reference teaches the use of drawing to produce the fibers. (Col. 5, line 48) OFOSU et al. discloses a spunbond/spunbond (SS) laminate with a basis weight of each of the layers of 34 gsm and that

Art Unit: 1771

both layers were made polypropylene. In their examples the reference uses polypropylene of different melt flow rate. (Columns 9-10) The reference anticipates the limitations of a bonded nonwoven fabric comprising at least one nonwoven layer of spunbond fibers and the fabric having a basis weight between about 13-125 g/m² [the basis weight of the fabric is 68 gsm when the basis weight of both layers is added]. The product of OFOSU et al. meets the limitations of a bonded nonwoven fabric with at least one nonwoven layer of spunbond fibers and meets the basis weight limitation. Further, OFOSU et al. also teaches spunbond/meltblown/spunbond embodiments in their invention. (Col. 5, lines 6-8) OFOSU et al. teaches that the fibers of their invention have an average diameter of from about 0.5 microns to about 50 microns. (Col. 2, lines 35-38) [The corresponding cross-section for fibers with these diameters is 0.196 –1962.5 μm^2].

While OFOSU et al. teaches the use of their fabric in medical products and protective covers, it fails to teach the use of a fluorochemical coating.

McAMISH et al. discloses a nonwoven fabric made of unreinforced micro fiber (melt-blown) webs that are suitable for use as medical fabrics. The reference teaches that for applications requiring repellency, such as for surgical gowns and drapes, the fabric can be treated further with suitable repellent chemicals. Fluorochemicals are normally employed to impart repellency. (Col. 10, lines 64-68)

It is further noted that the structure of fabric of the McAmish et al. reference is very similar to the structure of the present invention in that it is a bonded nonwoven fabric with basis weight within the ranges claimed herein. (Refer to Col. 3, lines Col 11, lines 10-13) Further, it provides grab tensile values and Frazier permeability that would read on the present application.

Art Unit: 1771

However, the reference uses melt-blown fibers instead of spunbond fibers. (Also refer to first table on Column 15, fabric 1) Fabrics 3 and 7 of that table disclose values for fabrics that comprise spunbond web layers. (Refer to Col. 14, lines 48-51, 65-68 and first table of Col. 15)

Since both, OFOSU et al. and McAMISH et al. are directed to nonwoven fabrics, the purpose disclosed by McAMISH et al. would have been recognized in the pertinent art of OFOSU et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the fabric the OFOSU et al. and provide with a fluorochemical coating with the motivation of imparting repellency and using the fabric in applications such as surgical gowns as disclosed by McAMISH et al. (Col. 10, lines 64-68).

Although OFOSU et al. and McAMISH does not explicitly teach the claimed grab tensile strength, Frazier permeability, hydrostatic head properties and cross sectional void percentage of the thermally bonded nonwoven fabric, it is reasonable to presume that these properties are inherent to the combination of OFOSU et al. and McAMISH. Support for said presumption is found in the use of like materials (i.e. layers of spunbond fibers produced by drawing with similar cross-sections, the use of thermal calendaring to form the fabric, basis weight that reads on the claimed values). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property of a grab tensile strength in both the MD and the CD between at least about $1 \text{ N}/(\text{g}/\text{m}^2)$, normalized for basis weight, and the combinations of Frazier permeability at and hydrostatic heads claimed herein would obviously have been present once the combination of OFOSU et al. and McAMISH is provided. Also the cross sectional void percentage of at least about 85 percent would obviously have been present once

Art Unit: 1771

the product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection made above under 35 USC 102. Reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner, et al.* (CCPA) 186 USPQ 80.

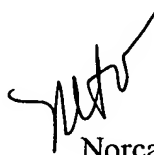
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

POTTS et al. (US 5,149,576) – directed to a multilayer nonwoven laminiferous structure having at least two melt-extruded nonwoven layers. (Refer to Figures 1 & 2; Col. 15, lines 25-30; Col. 16, lines 61-68; claim 8)

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Norca L. Torres-Velazquez whose telephone number is 571-272-1484. The examiner can normally be reached on Monday-Thursday 8:00-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Norca L. Torres-Velazquez
Examiner
Art Unit 1771

March 30, 2005